

June 19, 1923.

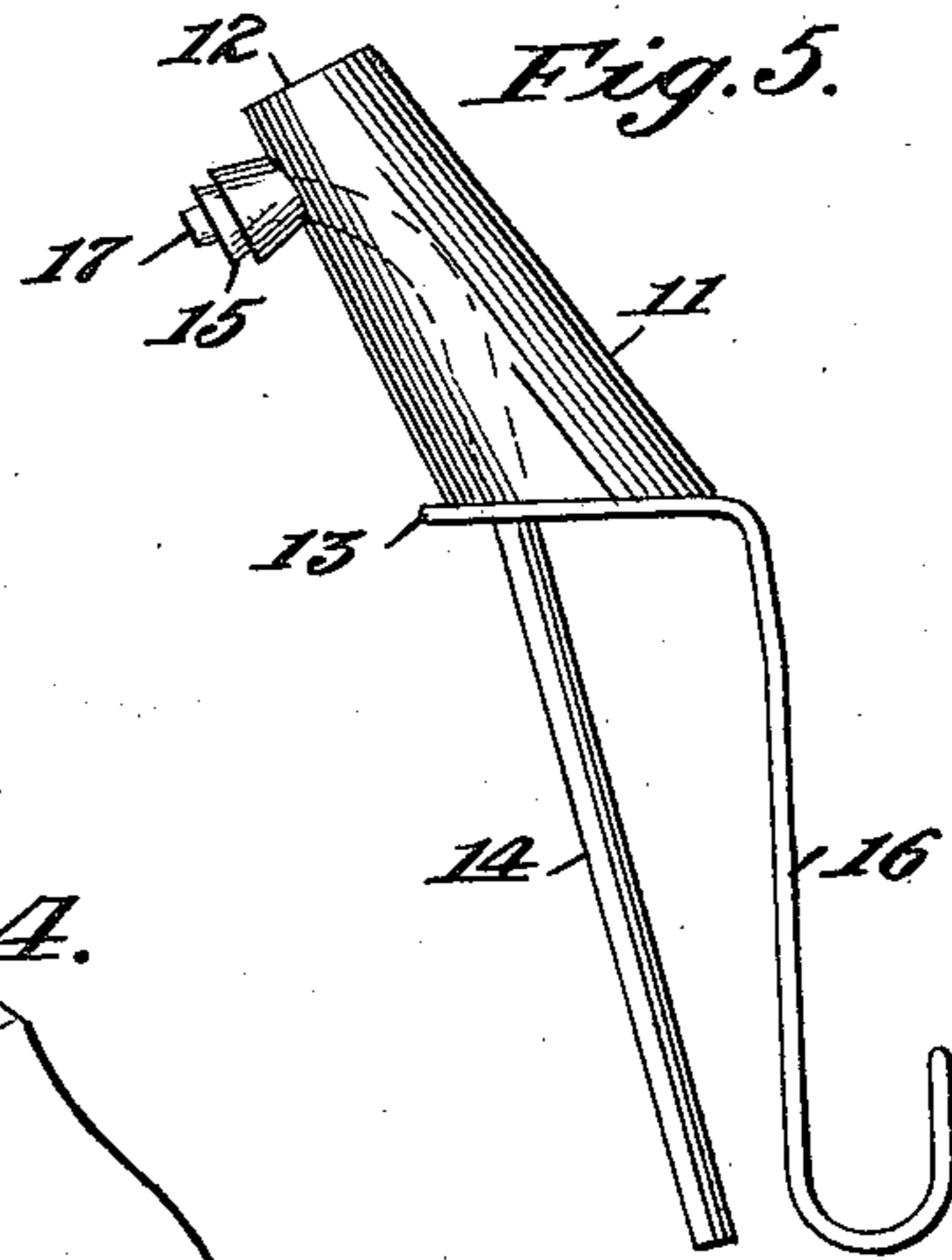
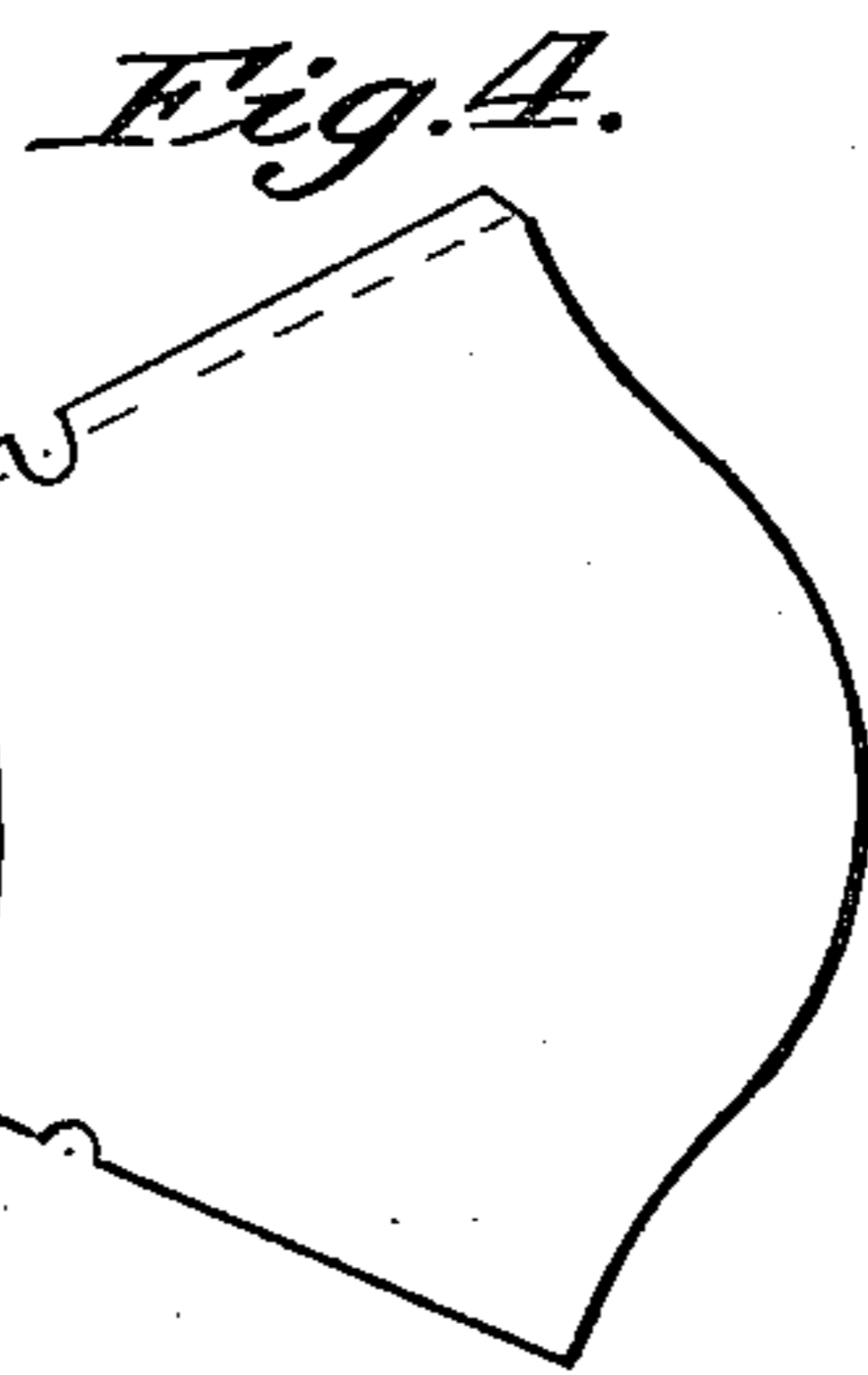
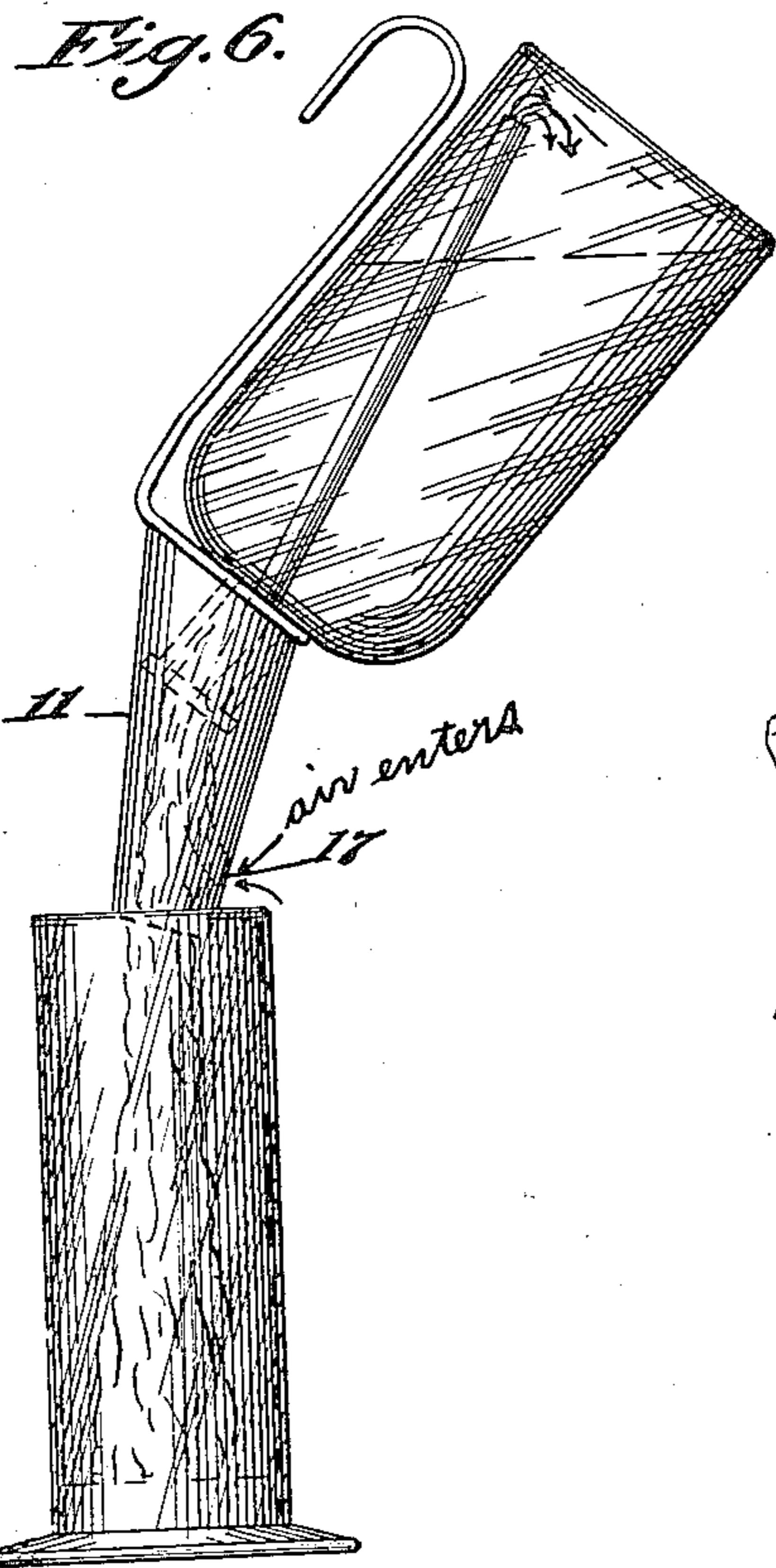
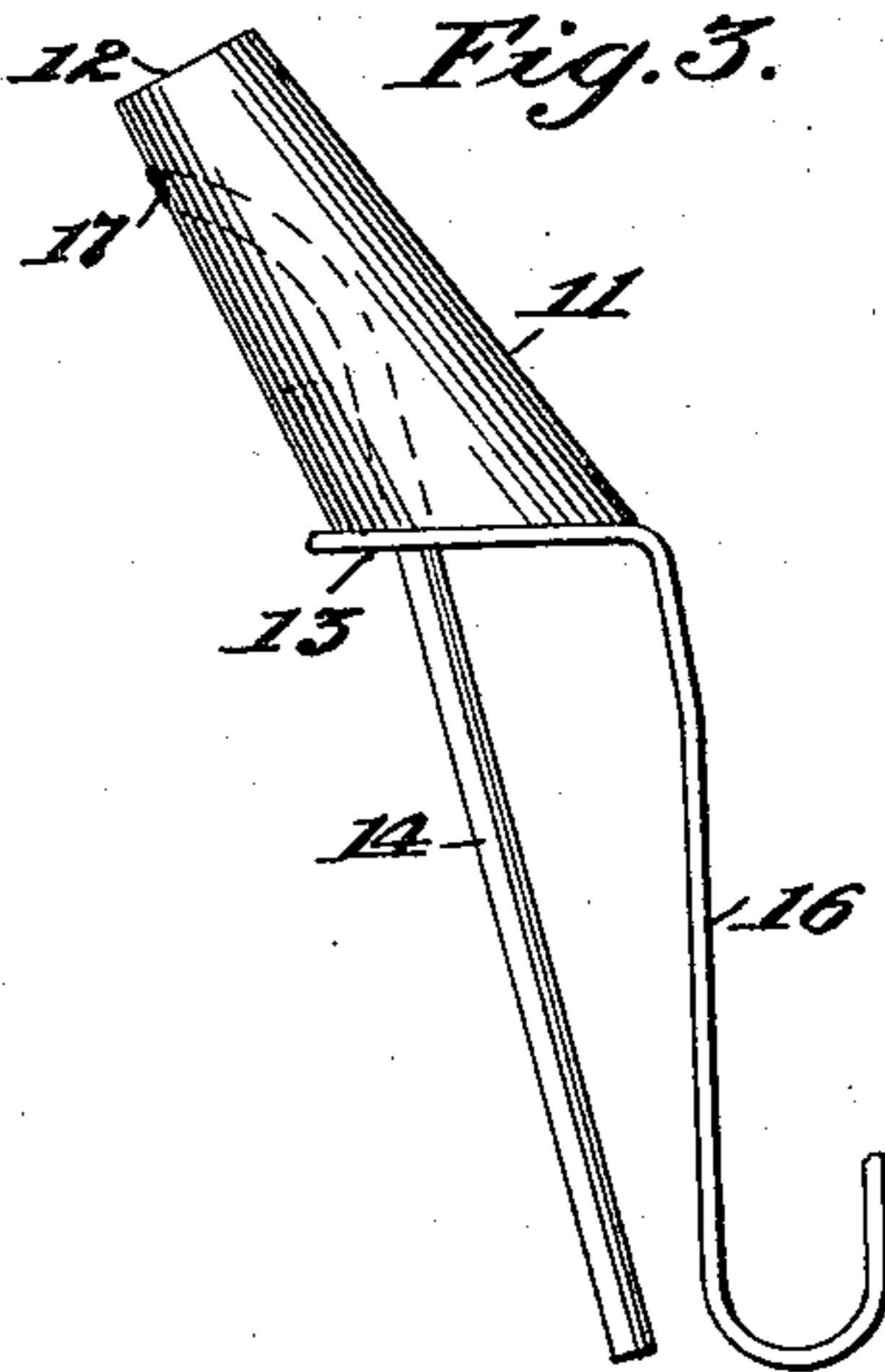
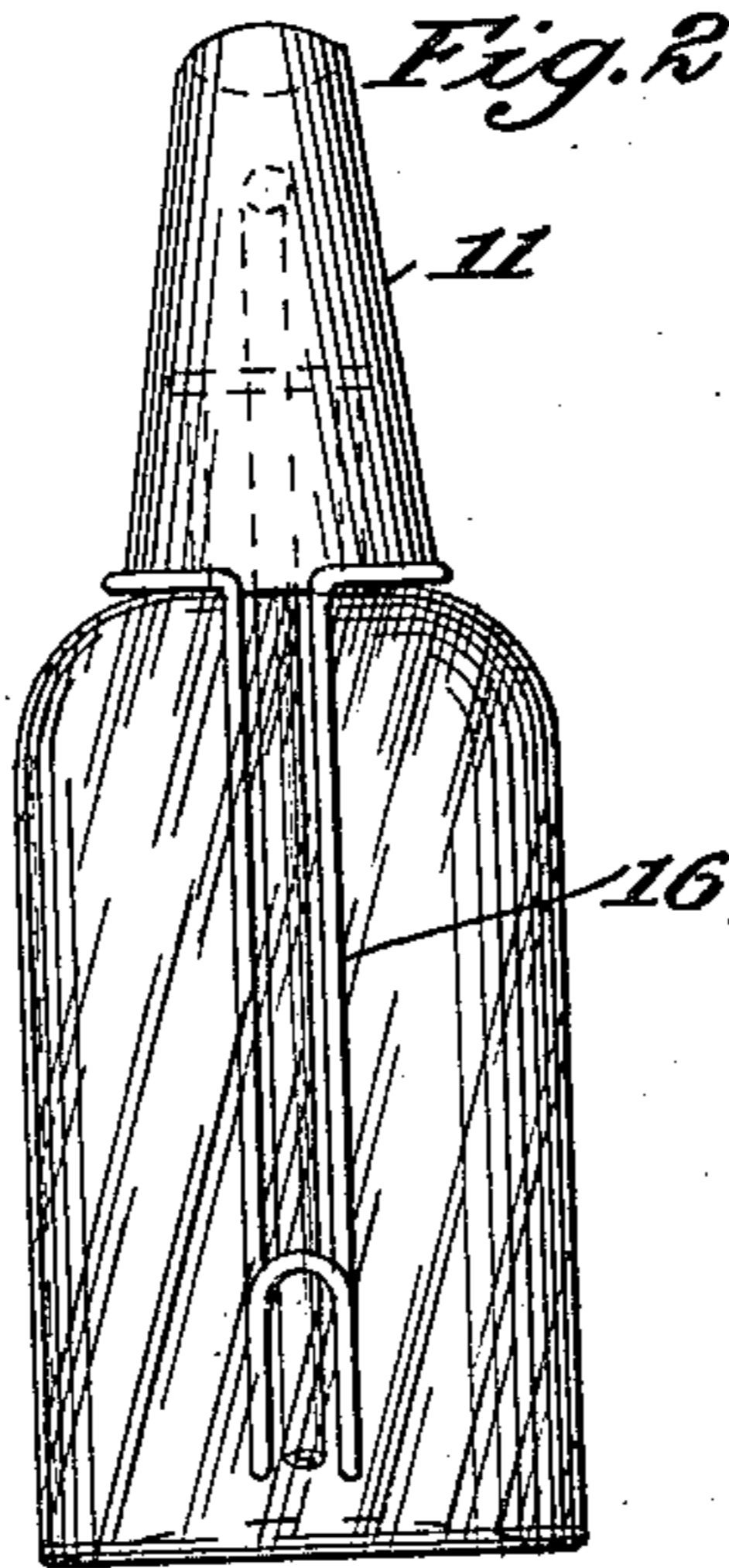
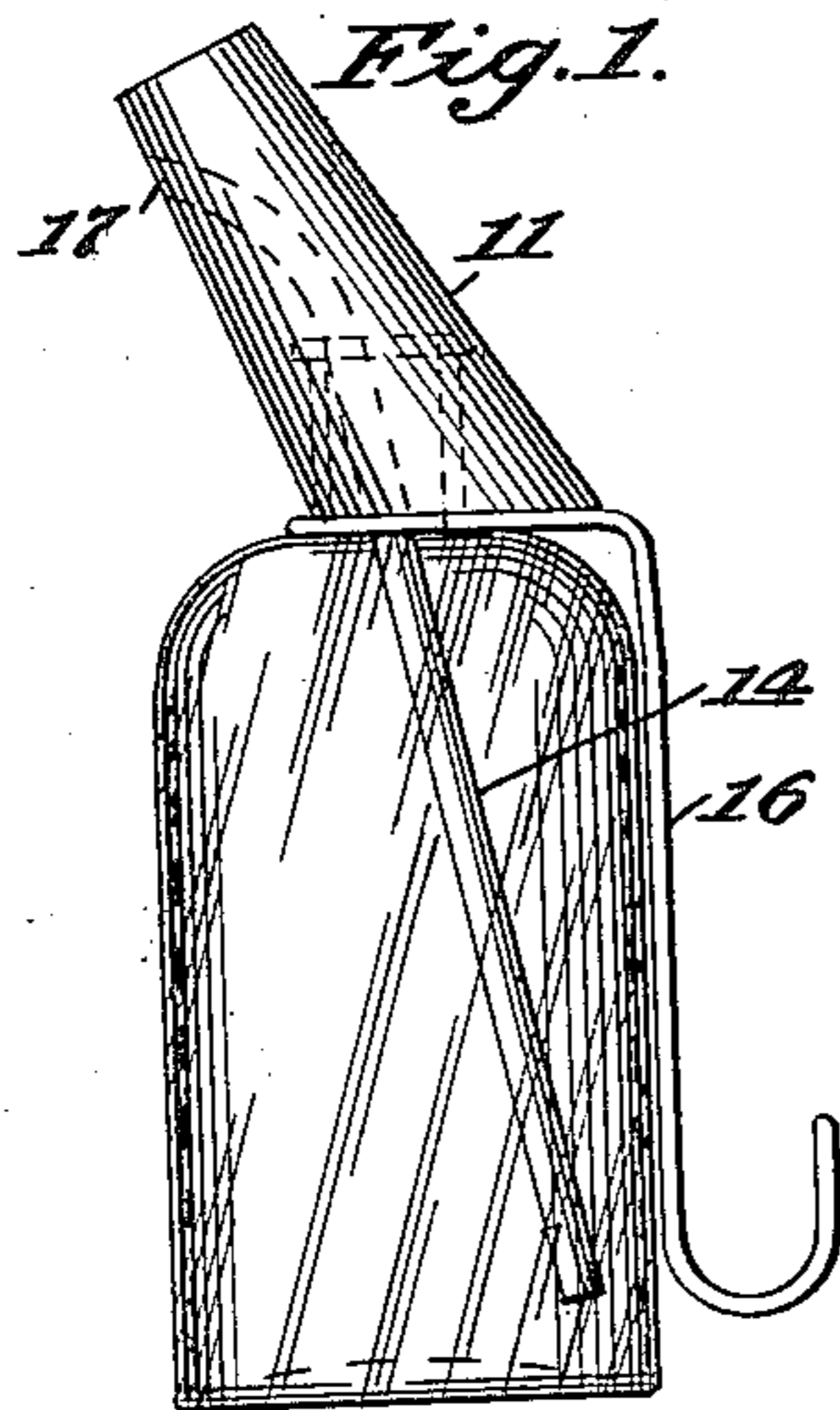
1,459,485

G. M. WHITNEY

EMPTYING DEVICE OR EMPTIER

Filed March 7, 1922

2 Sheets-Sheet 1



Inventor:
Gary M. Whitney
by Joseph W. Harris
Att'y.

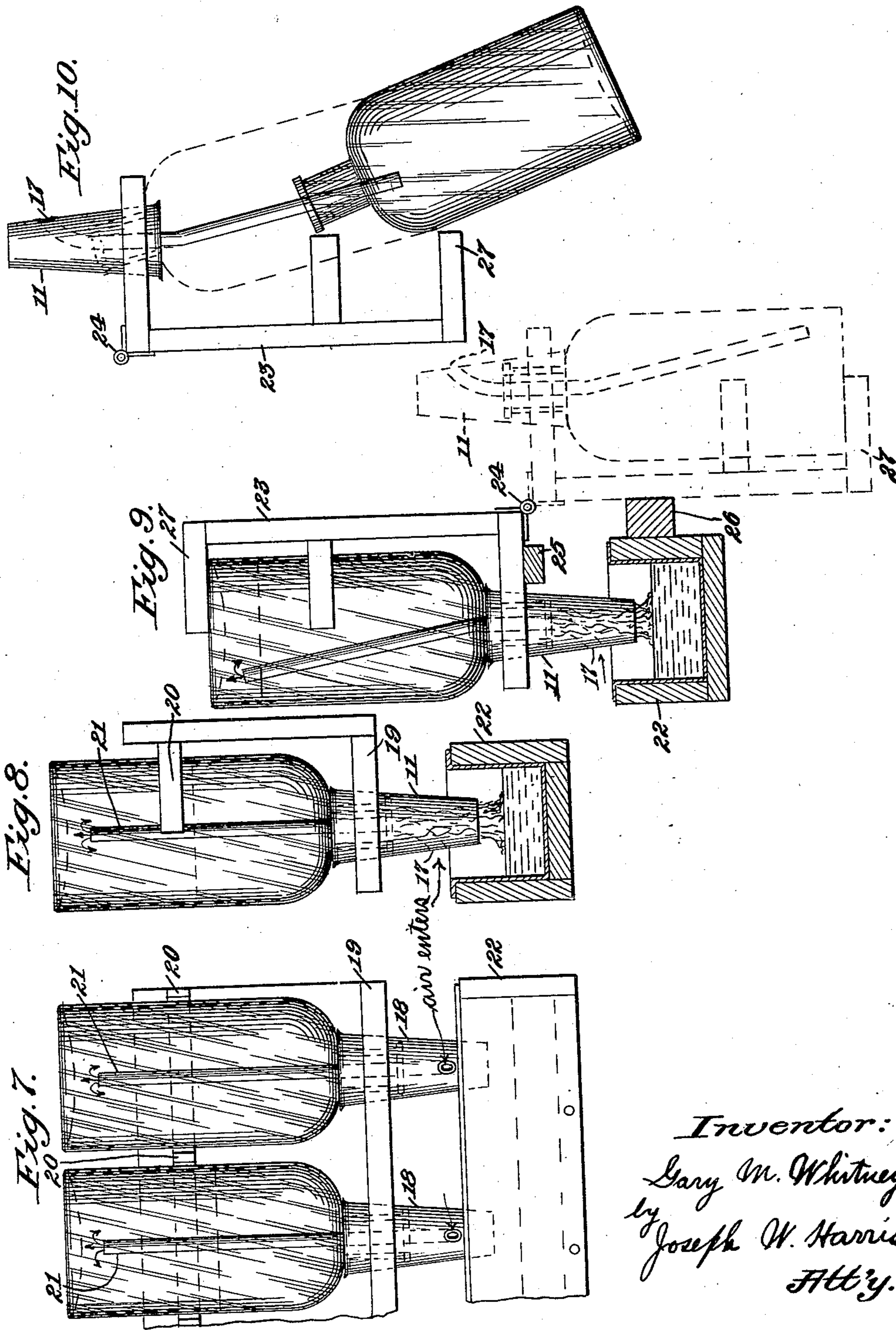
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UNITED STATES PATENT OFFICE.

GARY M. WHITNEY, OF GREYBULL, WYOMING.

EMPTYING DEVICE OR EMPTIER.

Application filed March 7, 1922. Serial No. 541,739.

To all whom it may concern:

Be it known that I, GARY M. WHITNEY, a citizen of the United States, residing at Greybull, in the county of Big Horn and State of Wyoming, have invented certain new and useful Improvements in Emptying Devices or Emptiers, of which the following is a specification.

This invention relates to emptying devices, or emptiers, for the rapid emptying of containers such as bottles, jugs, carboys, cans, or other necked receptacles, of their contents.

An object of the invention is to provide a simple and cheap device that will facilitate the rapid and safe emptying of containers.

A further object is to make an emptier that is portable and durable, and of sizes to fit different sized containers.

A further object is to provide an emptier that will deliver air to the air space within an inverted container.

A further object is to provide a support upon which a plurality or battery of emptiers may be placed, either detachably, or permanently, and by means of which a number of containers may be quickly emptied of their contents at a single operation.

Other objects of the invention will be evident upon reading the description.

In the accompanying drawings,

Figures 1 and 2 are side and front views respectively of the emptying device placed on a container, showing the neck of the container and the air pipe in dotted lines.

Figure 3 is a view in elevation of the emptier showing the air pipe in dotted lines within the cone;

Fig. 4 represents a sheet of metal cut in a shape that when rolled over, will form the cone of the emptier.

Fig. 5 shows a modification of Fig. 3 in which the air pipe is detachable.

Fig. 6 is a view in elevation, showing a bottle being emptied, with the liquid being collected in a receiver.

Figs. 7 and 8 are longitudinal and transverse vertical views, in elevation, of a frame or support holding a plurality or battery of containers and emptying devices discharging into a conduit or launder.

Fig. 9 is an end view in elevation of a modification in which the frame for holding a battery of containers is shown hinged

or pivoted permitting it to be tilted back for receiving the containers; and

Fig. 10 is an end view in elevation of the frame folded back showing the insertion of a container upon the frame.

The emptying device may be made of metal, for example, sheet copper, or brass, or tinned iron, or of such non-corrodible metals as Monel metal, or may be made of glass or glazed porcelain. When made of metal, it may also be enamelled if desired, to reduce the liability of corrosion.

A convenient form of the device is shown in Figs. 1, 2 and 3, in which the funnel portion, shown at 11, consists of a metal sheet shaped as shown in Fig. 4, and bent upon a form or mandrel to give it the shape of a hood or cone, truncated on a right line towards its apex, and having an oblique base. Secured to the base is a handle of suitable material. When made of metal the edges of the cone, and the wire handle are secured either by soldering, brazing, welding, etc. The air duct or air pipe 14 is made of suitable material, for example metal, and welded, brazed, or soldered to the cone, as shown, the entire structure being enamelled or japanned if desired. Or if the funnel is made of glass or porcelain, the air pipe may be integral therewith, or may be made detachable and secured to the cone by a rubber stopper 15, see Fig. 5. In the latter case, the rubber stopper may be covered with paraffine to protect it from corrosive liquids. With glass or porcelain cones, the handle may be integral, of glass or porcelain, or it may consist of a metal handle having a ring or socket that surrounds the cone. The air tube is preferably secured to the shorter side of the cone, as shown, this position permitting the quick discharge of a small amount of liquid it receives on its insertion in the container, allowing the liquid to drain into the receiver when inverted as shown in Fig. 6. In Figs. 6 and 9, the air tube is shown projecting toward one side of the bottom of the bottle, where an air space would naturally be on inverting the container. With standard 32 oz. bottles, it was found that the funnel gave very satisfactory results when its inclination was about 30 degrees from the axis of the bottle, but this angle would naturally vary with cones for different shaped containers. With a straight cone, with the hand emptier, if the bottle is

returned to normal position before complete emptying, a little liquid runs down the sides of the bottle.

Fig. 6 illustrates the emptying device in use, with the liquid contents rushing out from the container through the cone into a receiver, and air entering the air pipe 14 at its vent 17, either from the atmosphere, or from a supply under pressure, and passing to the space at the bottom of the container. The emptying device is placed upon a container, and the latter inverted over a receiver, the cone serving as a funnel or conduit for the liquid. In a practical test in a laboratory where many bottles are emptied daily, a thirty-two ounce standard round bottle was emptied repeatedly in six seconds, including the complete operation of placing the emptier on the bottle, inverting, discharging the liquid, removing the emptier, and placing it upon the next bottle, as against seventeen seconds to twenty seconds when waiting for a bottle to "gurgle" out.

In the modifications shown in Figs. 7 and 8, the emptiers 18 are secured into the frame 19, with the air pipes 21 projecting upwards. The frame 19 is provided with bracket arms 20 which partly surround and hold the container in a vertical position, and may have rubber friction grips on their ends to hold the container more securely. For some purposes, this modification may be a permanent fixture, in which case the containers should be quickly inverted over the air pipe 21 and fitted into the emptier cones 18, the small quantity of liquid that splashes on the frame would be collected in the trough or launder 22. With a battery of twelve or fifteen cones, or more for larger size containers, an operator will be able to put containers upon all of the emptiers, and replace them, keeping the entire battery working constantly.

In the modification shown in Fig. 9, the frame 23, which is also constructed to hold a battery of containers, is suitably hinged or pivoted about a rod 24 enabling it to be tilted, and in the inverted position, rests on the support 25; while in the dotted line or "filling" position, it rests against the support 26. To be operated, the frame is placed as shown in the dotted or filling position, and a container, for example a bottle, is inserted as shown in Fig. 10, the bottle finally resting on the ledge 27; the frame containing the battery of containers is now inverted to the full line position shown in Fig. 9; and the contents discharged into the launder 22; the frame is then reversed and the bottles exchanged for others to be emptied.

It is obvious that those skilled in the art may vary the details of construction of the apparatus without departing from the spirit of the invention, and therefore I do not

wish to be limited to the above disclosure except as may be required by the claims.

I claim:

1. In an emptier, a discharge conduit for the contents of a container, said conduit consisting of a conically shaped tubular support for receiving the neck of a bottle-shaped container, and an air duct opening through the wall of the support to within the conduit and constructed to enter the discharge opening of the container and deliver air therein.

2. In an emptier, a discharge conduit for the contents of a container, said conduit consisting of a conically shaped tubular support for receiving the neck of a bottle-shaped container, and an air duct opening through the wall of the support to within said conduit and having air communication at one end through the wall of said conduit, and the other end constructed to enter the discharge opening of the container.

3. In an emptier, a discharge conduit for the contents of a container, said conduit consisting of a conically shaped tubular support for receiving the neck of a bottle-shaped container, and an air duct opening through the wall of the support to within said conduit and having air communication at one end through the wall of said conduit, the other end constructed to enter the discharge opening of the container, and means to support said emptier.

4. In an emptier, a discharge conduit for the contents of a container, said conduit consisting of a conically shaped tubular support for receiving the neck of a bottle-shaped container, and an air duct opening through the wall of the support to within said conduit and having air communication at one end through the wall of said conduit, the other end constructed to enter the discharge opening of the container, means to support a plurality of said emptiers, and said means also constructed to hold a container in operative relation to each emptier.

5. In an emptier, a discharge conduit for the contents of a container, said conduit consisting of a hood for the discharge opening of the container, an air duct within said conduit and having air communication at one end with the region outside of said conduit, the other end constructed to enter the discharge opening of the container, means to support a plurality of said emptiers, said means also constructed to hold a container in operative relation to each emptier, and said means also constructed and arranged to be tilted back to facilitate the placing of full containers thereon.

In testimony whereof I hereby affix my signature.

GARY M. WHITNEY.